

Notice of Allowability

Application No.

10/767,776

Applicant(s)

BIRDWELL ET AL.

Examiner

NAVNEET K. AHLUWALIA

Art Unit

2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/10/2008.
2. ☒ The allowed claim(s) is/are 42,44,45,49-56,61-64,75 and 76(Renumbered 1 - 17).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20080411</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>12/06/2007</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas H. Jackson (Reg. No. 29,808) on 04/10/2008.

The listing of claims submitted on 09/19/2007 has been replaced by this listing as follows:

Claims 1 – 41. Cancelled

Claim 42. A parallel data processing system for search, storage and retrieval of data of a database responsive to client queries for specific data of said database, said parallel data processing system comprising:

a plurality of host processors including a root host processor, said root host processor being responsive to said client queries for said specific data of said database, wherein at least two host processors have a search engine and maintain information of a search queue of said client queries;

at least two host processors having a queue of search requests for specific data of said database, each of said host processors executing a search engine, communicating capacity and load information between host processors and said at least

Art Unit: 2166

two host processors exchanging at least one search request, the search engine removing at least one search request from a search queue and generating an additional search request,

each of said host and root host processors maintaining a list of available host processors and information about the capacity and load for each available host processor in memory and broadcasting its capacity and load information to other host processors and bringing its search queue into balance with another host processor according to a time constant in response to receipt of said broadcast capacity and load information; and

a communications system coupling said host and root processors, wherein at least two host processors communicate capacity and load information to other host processors; selected host processors storing a database index for said database comprising nodes of a database tree for said database and data accessible via said nodes of said database tree.

Claim 43. Cancelled

Claim 44. A parallel data processing system for search, storage and retrieval of data of a database responsive to client queries for specific data of said database, said parallel data processing system comprising:

a plurality of host processors including a root host processor, said root host processor being responsive to said client queries for said specific data of said database;

each of said host and root host processors maintaining a list of available host processors and information about the capacity and load for each available host processor in memory;

at least two host processors having a queue of search requests for specific data of said database, each of said host processors executing a search engine, communicating capacity and load information between host processors and said at least two host processors exchanging at least one search request, the search engine removing at least one search request from a search queue and generating an additional search request, and

a communications system coupling said host and root processors, wherein at least two host processors communicate capacity and load information to other host processors and each have a search engine and each maintain load information of a search queue length of said client queries; each of said at least two host processors broadcasting its capacity and search queue length load information to other host processors and bringing its search queue of said client queries into balance according to a time constant with another host processor in response to receipt of said broadcast capacity and load information; selected host processors storing a database index for said database comprising nodes of a database tree for said database and data accessible via said nodes of said database tree wherein the plurality of host processors comprises three host processors, of which two host processors have search engines and maintain information of said search queue of said client queries and the third comprises said root host processor.

Claim 45. A parallel data processing system for search, storage and retrieval of data of a database responsive to client queries for specific data of said database, said parallel data processing system comprising:

a plurality of host processors including a root host processor, said root host processor being responsive to said client queries for said specific data of said database;

each of said host and root host processors maintaining a list of available host processors and information about the capacity and load for each available host processor in memory;

at least two host processors having a queue of search requests for specific data of said database, each of said host processors executing a search engine, communicating capacity and load information between host processors and said at least two host processors exchanging at least one search request, the search engine removing at least one search request from a search queue and generating an additional search request, and

a communications system coupling said host and root processors, wherein at least two host processors communicate capacity and load information to other host processors and have a search engine and maintain load information of a search queue length of said client queries; each of said at least two host processors bringing its search queue of client queries into balance with another host processor according to a time constant in response to receipt of said broadcast capacity and load information; selected host processors storing a database index for said database comprising nodes

Art Unit: 2166

of a database tree for said database and data accessible via said nodes of said database tree wherein the plurality of host processors comprises two host processors, of which one comprises said root host processor and both said host processors have search engines and maintain information of said search queue of said client queries.

Claims 46 – 48. Cancelled

Claim 49. The parallel data processing system of claim 42, each host processor reconfiguring information on available host processors in response to the receipt of broadcast search queue length load and gathered processor capacity information.

Claim 50. The parallel data processing system of claim 49, wherein the information on available host processors at each available host processor changes in response to failure of a host processor.

Claim 51. The parallel data processing system of claim 49, wherein the information on available host processors at each available host processor changes in response to the addition of a host processor.

Claim 52. The parallel data processing system of claim 42, wherein said plurality of host processors comprises groups of host processors.

Claim 53. The parallel data processing system of claim 52, all host processors in each group operating on the same database.

Claim 54. The parallel data processing system of claim 52, each group being assigned a portion of the database.

Claim 55. The parallel data processing system of claim 54, each group being assigned a different portion of the database.

Claim 56. The parallel data processing system of claim 55, wherein each processor of a group of processors is assigned the same portion of the database.

Claim 59. Cancelled

Claim 60. Cancelled

Claim 61. The parallel data processing system of claim 42, said database index being a database tree for said database, said host processors capable of executing a set of tests, associating one test to each non-terminal node of said database index for said database.

Art Unit: 2166

Claim 62. The parallel data processing system of claim 42, said available host processors comprising groups of m processors where m is an integer greater than 1.

Claim 63. The parallel data processing system of claim 42, wherein said communications system is proximately located to said root host processor.

Claim 64. The parallel data processing system of claim 42, wherein the plurality of host processors comprises at least two host processors having search engines and maintaining information of a search queue of said client queries, one of said host processors processing a search request and generating a new search request.

Claims 65 – 74. Cancelled

Claim 75. The parallel data processing system of claim 42, further comprising shared memory between host processors.

Claim 76. The parallel data processing system of claim 42, further comprising distributed memory among each processor.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navneet K. Ahluwalia whose telephone number is 571-272-5636.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam T. Hosain can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Navneet K. Ahluwalia
Examiner
Art Unit 2166

Dated: 04/11/2008

/Hosain T Alam/
Supervisory Patent Examiner, Art Unit 2166